

AMENDMENTS TO THE CLAIMS:

Please amend the claims as indicated in the marked-up version of the listing of claims presented below. This listing of claims replaces all prior versions and listings of claims in the present application.

LISTING OF THE CLAIMS

1. (Currently amended) An apparatus for creating a molecular array comprising:
a base;
a Z controller coupled to the base, wherein the Z controller is selectively positionable along a Z axis relative to the base;
a deposition probe removably coupled to the Z controller so that the deposition probe is selectively positionable along the Z axis relative to the base by the Z controller;
an X, Y controller coupled to the base, wherein the X, Y controller is selectively positionable in an X-Y plane independently of movement of the Z controller, the X, Y controller further comprising a deposition substrate coupled thereto and wherein the movement of the X, Y controller moves the deposition substrate between a first position and a second position, the second position being located under the deposition probe; and
an X, Y translation stage coupled to the base wherein the X, Y translation stage is selectively positionable in an X-Y plane independently of movement of the X, Y controller, the X, Y translation stage further comprising a loading substrate coupled thereto and wherein the movement of the X, Y translation stage moves the loading substrate between a first position and a second position, the second position being located under the deposition probe.
2. (Original) The apparatus of claim 1 further comprising a control computer.
3. (Previously presented) The apparatus of claim 2 further comprising a humidity controller coupled to the base wherein the humidity controller controls the humidity around the deposition probe.
4. (Previously presented) The apparatus of claim 3 wherein the humidity controller is coupled to the control computer.

5. (Original) The apparatus of claim 1 wherein the Z controller has an approximately 200 nanometer spatial resolution along the Z axis.

6. (Previously presented) The apparatus of claim 5 wherein the X, Y controller has an approximately 20 nanometer spatial resolution in the X-Y plane.

7. (Original) The apparatus of claim 1 wherein the loading substrate further comprises one or more deposition materials deposited thereon.

8. (Previously presented) The apparatus of claim 1 further comprising an optical microscope coupled to the base.

9. (Original) The apparatus of claim 2 further comprising a force feedback monitor.

10. (Previously presented) The apparatus of claim 1 wherein the deposition probe further includes a tip.

11. (Original) The apparatus of claim 10 further comprising a humidity controller, the humidity controller selectively controlling the humidity of the air around the tip.

12. (Original) The apparatus of claim 2 wherein the control computer further comprises a stepper motor control card.

13. (Currently amended) The apparatus of claim ~~12~~ 11 wherein the humidity controller further comprises a dry gas source, a humidity source, and a gas flow monitor.

Claims 14-20 canceled.

21. (Previously presented) An apparatus for creating a molecular array on a deposition substrate comprising:

a base;

a deposition probe removably coupled to the base;

an X, Y translation stage coupled to the base wherein the X, Y translation stage is selectively positionable along the X axis, and the Y axis, the X, Y translation stage further comprising a loading substrate coupled thereto and wherein the movement of the X, Y translation stage moves the loading substrate between a first position and a second position, the second position being located under the deposition probe; and

an X, Y controller coupled to the base wherein the X, Y controller is selectively positionable along the X axis, and the Y axis independently of the X, Y translation stage, the X, Y controller further comprising a deposition substrate coupled thereto and wherein the movement of the X, Y controller moves the deposition substrate between a first position and a second position, the second position being located under the deposition probe.

22. (Previously presented) The apparatus of claim 21 further comprising a control computer.

23. (Previously presented) The apparatus of claim 22 further comprising a humidity controller coupled to the base wherein the humidity controller controls the humidity around the deposition probe.

24. (Previously presented) The apparatus of claim 23 wherein the humidity controller is to the control computer.

25. (Previously presented) The apparatus of claim 21 further comprising a Z controller coupled to the base, wherein the Z controller is selectively positionable along a Z axis, and wherein the Z controller has an approximately 200 nanometer spatial resolution along the Z axis.

26. (Previously presented) The apparatus of claim 25 wherein at least one of the X, Y controller and the X, Y translation stage have an approximately 20 nanometer spatial resolution along the X and Y axes.

27. (Previously presented) The apparatus of claim 21 wherein the loading substrate further comprises one or more deposition materials deposited thereon.

28. (Previously presented) The apparatus of claim 21 further comprising an optical microscope coupled to the base.

29. (Previously presented) The apparatus of claim 22 further comprising a force feedback monitor.

30. (Previously presented) The apparatus of claim 21 wherein the deposition probe further includes a tip.

31. (Previously presented) The apparatus of claim 30 further comprising a humidity controller, the humidity controller selectively controlling the humidity of the air around the tip.

32. (Previously presented) The apparatus of claim 22 wherein the control computer further comprises a stepper motor control card.

33. (Previously presented) The apparatus of claim 32 wherein the humidity controller further comprises a dry gas source, a humidity source, and a gas flow monitor.

34. (Previously presented) An apparatus for creating an array on a substrate comprising:

a base;

a deposition probe coupled to the base, the deposition probe further comprising a tip;

an X, Y translation stage coupled to the base and movable in X and Y directions;

a loading substrate coupled to the X, Y translation stage where the loading substrate is selectively movable in the X and Y directions and into a position under the deposition probe;

an X, Y controller coupled to the base and movable in the X and Y directions independently with respect to the X, Y translation stage;

a deposition substrate coupled to the X, Y controller where the deposition substrate is selectively movable by the X, Y controller into a position under the deposition probe; and

a humidity controller, the humidity controller selectively adjusting the humidity around the deposition probe, the X, Y translation stage, and the X, Y controller.

35. (Currently amended) An apparatus for creating an array on a substrate, the apparatus comprising:

a base;

a Z controller coupled to the base and movable relative to the base along a Z axis;

a deposition probe removably coupled to the Z controller such that the deposition probe is movable relative to the base along the Z axis;

a loading substrate coupled to the base and movable relative to the deposition probe in an X-Y plane, the loading substrate movable between a first position in the X-Y plane in which the loading substrate is not positioned under the deposition probe and a second position in which the loading substrate is positioned under the deposition probe to allow the deposition probe to pick up material from the loading substrate; and

a deposition substrate coupled to the base and movable relative to the deposition probe in an X-Y plane, the deposition substrate movable independently of movement of the loading substrate between a first position in the X-Y plane in which the deposition substrate is not positioned under the deposition probe and a second position in which the deposition substrate is positioned under the deposition probe to allow the deposition probe to deposit material onto the deposition substrate.

36. (New) An apparatus for creating a molecular array comprising:

- a base;
- a Z controller coupled to the base, wherein the Z controller is selectively positionable along a Z axis relative to the base;
- a deposition probe removably coupled to the Z controller so that the deposition probe is selectively positionable along the Z axis relative to the base by the Z controller;
- an X, Y controller coupled to the base, wherein the X, Y controller is selectively positionable in an X-Y plane by a first actuator, independently of movement of the Z controller, the X, Y controller further comprising a deposition substrate coupled thereto and wherein the movement of the X, Y controller moves the deposition substrate between a first position and a second position, the second position being located under the deposition probe; and
- an X, Y translation stage coupled to the base wherein the X, Y translation stage is selectively positionable in an X-Y plane by a second actuator, the X, Y translation stage further comprising a loading substrate coupled thereto and wherein the movement of the X, Y translation stage moves the loading substrate between a first position and a second position, the second position being located under the deposition probe.

37. (New) The apparatus of claim 36 further comprising:

- a control computer coupled to the Z controller and the X, Y controller;
- a force feedback monitor coupled to the deposition probe and the control computer; and
- a humidity controller coupled to the Z controller and the control computer.

38. (New) The apparatus of claim 36 further comprising an ozone source for cleaning the deposition probe.